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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/079,513	02/22/2002	Laurent Alain Najman	0142-0380P-SP	6434
2292	7590	10/04/2005	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			CONOVER, DAMON M	
			ART UNIT	PAPER NUMBER

2623

DATE MAILED: 10/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/079,513	Applicant(s) NAJMAN ET AL.	
	Examiner Damon Conover	Art Unit 2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-6,8,12 and 14-16 is/are rejected.
- 7) ☒ Claim(s) 3,7,9-11, and 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>2/22/02</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 4-5, 6, 8, 14, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikemure (U.S. patent 5,502,777) in view of Abe (U.S. patent 5,129,012)

With respect to claim 1, Ikemure discloses a method and apparatus for recognizing a table in an area of a scanned document (abstract). Ikemure describes that the table is detected by counting the number of black pixels associated with the lateral and longitudinal lines N_{p1} , counting the number of black pixels that are adjacent to each other in the lateral direction N_{p2} , and calculating the ratio. If the ratio is higher than a prescribed value, it is recognized as a table (column 3, lines 28-50). This method is analogous to line density. Ikemure further discloses an area classifying means for defining rectangular areas (crops) that contain potential tables (column 6, lines 48-59).

Ikemure does not describe a method for determining the location and length of lines greater than a predetermined threshold.

Abe discloses a technique for determining the size and location of a table, block, or line pattern (column 3, lines 2-3). The length of the line is compared to a

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threshold l_{th} to determine if it could be part of a table (column 3, lines 13-16). If the separation between adjacent lines is less than a predetermined amount δd , the separate lines are linked to form one line (column 3, lines 19-21). If the two lines are vertically separated by less than a predetermined amount δV , the lines are identified as a single line segment (column 3, lines 24-26).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Ikemure the line detection and merging technique as taught by Abe, in order to improve the accuracy of table detection.

With respect to claims 4, 5, and 8, Abe describes that separate lines are linked to form one line, if the separation between adjacent lines is less than a predetermined amount δd (column 3, lines 19-21) and the line length is above a threshold l_{th} (column 3, lines 13-16).

With respect to claim 6, Ikemure discloses that lateral and longitudinal lines and the corresponding intersection number within a rectangular area are counted in step S8 (column 12, lines 29-38). In step S9, if the intersection number is higher than a prescribed value, it is determined that a table exists within the rectangular area (column 13, lines 8-11).

With respect to claim 14, Ikemure discloses in step S2 that the image resolution is degraded to about 100 dpi to improve the processing rate (column 11, lines 34-41).

With respect to claim 16, the "apparatus for automatically locating a table in a document" corresponds to the "method of automatically locating a table in a document" of claim 1. The discussion is the same as above.

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2. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ikemure and Abe as applied to claims 1, 4-5, 6, 8, 14, and 16 above, and further in view of Syeda-Mahmood ("Extracting Indexing Keywords from Image Structures in Engineering Drawings". ICDAR '99. Proceedings of the Fifth International Conference. Sept. 20-22, 1999. Pages 471 – 474.).

As discussed above, Ikemure discloses a method for defining rectangular areas in a scanned document then comparing the number of black pixels in each area associated with the lateral and longitudinal lines N_{p1} with the number of black pixels in the area that are adjacent to each other in the lateral direction N_{p2} to determine if a table exists. As discussed above, Abe discloses a technique for determining the size and location of a table, block, or line pattern.

The combination of Ikemure and Abe does not specify the type of documents that are searched.

Syeda-Mahmood discloses a system for indexing engineering drawings (abstract). Engineering drawings are analogous to technical drawings.

It would have been obvious to one of ordinary skill in the art to include in Ikemure and Abe the indexing of engineering drawings of Syeda-Mahmood, in order to capture descriptive text included in engineering drawings.

3. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ikemure and Abe as applied to claim 1, 4-5, 6, 8, 14, and 16 above, and further in view of Takahashi (U.S. patent 6,055,036).

As discussed above, Ikemure discloses a method for defining rectangular areas in a scanned document then comparing the number of black pixels in each

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area associated with the lateral and longitudinal lines N_{p1} with the number of black pixels in the area that are adjacent to each other in the lateral direction N_{p2} to determine if a table exists. As discussed above, Abe discloses a technique for determining the size and location of a table, block, or line pattern.

The combination of Ikemure and Abe does not include a step for verifying the format of the document to be analyzed.

Takahashi discloses an image reading apparatus for reading images from a bound document and printing them in accordance with an image input signal (abstract). The apparatus includes a display panel with a paper key 99-26 to select a desired paper size, a photo key 99-28 to select the kind of documents (text/photo or photo), a light key 99-29, a dark key 99-30, and an auto density key 99-31 (column 5, lines 60-67).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Ikemure and Abe the display panel as taught by Takahashi in order to customize the scan process based on page size and document type.

4. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ikemure and Abe as applied to claims 1, 4-5, 6, 8, 14, and 16 above, and further in view of Casey et al. ("Intelligent Forms Processing System". Machine Vision and Applications. Vol. 5. 1992. Pages 143-155).

As discussed above, Ikemure discloses a method for defining rectangular areas in a scanned document then comparing the number of black pixels in each area associated with the lateral and longitudinal lines N_{p1} with the number of

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black pixels in the area that are adjacent to each other in the lateral direction N_{p2} to determine if a table exists. As discussed above, Abe discloses a technique for determining the size and location of a table, block, or line pattern.

The combination of Ikemure and Abe does not include a step for deskewing the scanned image.

Casey et al. disclose a form processing system for indexing form documents and capturing information (abstract). The system includes a method for rotating the fields in the form by the degree of the form skew in order to compensate for the skew (page 147, section 5.1).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Ikemure and Abe the skew compensation method as taught by Casey et al. in order to improve the accuracy of the table detection.

Allowable Subject Matter

5. Claims 3, 7, 9-11, and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Damon Conover whose telephone number is (571) 272-5448. The examiner can normally be reached Monday – Friday, 8:00 a.m. - 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached at (571) 272-7429. The fax

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



JINGGE WU
PRIMARY EXAMINER